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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/800,230

03/12/2004

Kazuhito Matsuda

TOW-067

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959 7590 11/26/2007
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EXAMINER

LAIOS, MARIA J

ART UNIT	PAPER NUMBER
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1795

MAIL DATE	DELIVERY MODE
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11/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/800,230

Applicant(s)

MATSUDA ET AL.

Examiner

Maria J. Laios

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 09 November 2007 and 13 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 6 and 7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This office action is in response to the amendment filed on November 9, 2007. Claim 4 has been amended. Claims 2 and 5 have been cancelled. Claims 1, 3, 4, 6 and 7 have been finally rejected for reasons necessitated by applicant's amendment.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1, 3, 4, 6, and 7 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation of "wherein said oxygen is supplied to said ATR separately from said water" in claims 1 and 4. The specification only states on page 15 lines 7-9 that "According to the present invention, a fuel, a water vapor (steam), and oxygen are supplied to the reforming mechanism" and Figure 2 shows that there is only one input to reformer 30 which is mixture of fuel air and steam.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Woods (US 20030046867 A1) in view of Dickman (US 2003/0008186) and Joshi (US 2004/0146821 A1).

With respect to claims 1, 3, 4, and 6, Woods discloses a fuel gas production apparatus for reforming hydrogen containing fuel (methane – paragraph 19 as applied to claims 3 and 6) to produce a hydrogen rich fuel gas comprising an auto-thermal reforming system (ATR, Figure 4, 70), said reforming mechanism including an evaporator (Paragraph 19, not shown in figure) for changing water into steam; a PSA mechanism (50) for removing impurities from reformed gas to refine the reformed gas into a fuel gas, a cooling mechanism (90, 34, 40) provided between the reforming mechanism (70) and the PSA system (50) wherein the reforming mechanism uses the hydrogen containing fuel (12) steam and oxygen (84) to induce oxidation reaction and reforming reaction simultaneously, and oxygen (20) is supplied to the ATR (70) with water (17) but Woods fail to disclose an off gas tank connected to the PSA and evaporator and the oxygen is supplied to the ATR separately from the water.

Dickman discloses a hydrogen producing system with a fuel processing (12) and multiple inputs (16, Figure 5) to the fuel processor (12) where the benefit of having multiple streams is that the inputs can be taken from multiple reservoirs or supplies and can be fed in the appropriate ratios (Paragraph 39) and a fuel cell system (Figure 1, 10 as applied to claim 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the multiple inputs of Dickman to the ATR of Woods because this would allow for more

control of the inputs. Furthermore it would have been obvious to one of ordinary skill in the art at the time of the invention to use the fuel gas production unit of Woods as a fuel source for the fuel cell system of Dickman as a further use of the gas production system.

Woods modified by Dickman fail to disclose the off gas tank connected to the PSA.

Joshi discloses a PSA system and recycling the waste gases where the use of a tank is used to even out cyclic pressure fluctuations in the waste supply gas (Paragraph 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include a tank of Joshi to the PSA unit of Woods modified by Dickman because this would even out the cyclic pressure fluctuations in the supply gas to the evaporator.

With respect to claim 7, Dickman further discloses an air delivery assembly (Paragraph 33), Dickman fail to explicitly state that an air blower is used. It is either inherent or an obvious variant for an air delivery assembly to include a blower so that air can in fact be delivered as required.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 3, 4, 6, and 7 have been considered but are moot in view of the new ground(s) of rejection as necessitated by amendment.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maria J. Laios whose telephone number is 571-272-9808. The examiner can normally be reached on Monday - Thursday 9:30 - 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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SUPERVISORY PATENT EXAMINER